## REMARKS

Continued examination and favorable reconsideration are respectfully requested. Claims 20, 23-34, and 36-55 remain pending in the application. Claims 1-19, 21-22, and 35 were previously canceled without prejudice or disclaimer. By this Amendment, claims 20, 33, and 45 have been amended to even further clarify the claimed subject matter, and claim 56 has been added. Thus, claims 20, 23-34, and 36-56 are pending. Support for the amended claims and the new claim can be found throughout the application, for example, at least in paragraphs [0058] – [0065] and in the claims of corresponding Patent Application Publication No. US 2005/0059017 A1. No new matter has been added.

Applicants gratefully appreciate the Examiner's indication at page 2 of the Office Action, that the previous rejections under 35 U.S.C. §103 have been withdrawn.

***Rejection of Claims Under 35 U.S.C. §102(e)***

**Rejection #1**

At page 3, the Office Action rejects claims 20, 23-27, 33-34, 36-39, and 45-50 under 35 U.S.C. §102(e) over U.S. Patent No.US 6,894,264 B2 to Sagatelyan et al. (Sagatelyan '264). For the reasons set forth below, Applicants respectfully traverse this rejection.

The Applicants submit herewith, a declaration under 37 C.F.R. § 1.131, executed by both inventors, along with a redacted invention disclosure statement as evidence that Applicants conceived and began reducing to practice the invention claimed in the above-identified patent application, prior to October 15, 2002, the filing date of Sagatelyan '264.

Thus, the rejection of claims 20, 23-27, 33-34, 36-39, and 45-50, in view of U.S. Patent No.

US 6,894,264 B2 to Sagatelyan et al., is deemed to be overcome. Applicants respectfully request reconsideration and withdrawal of this rejection.

**Rejection #2**

At page 6, the Office Action rejects claims 20, 23-27, 33-34, 36-39, and 45-50 under 35 U.S.C. §102(e) over U.S. Patent No. US 7,067,791 B2 to Sagatelyan et al. (Sagatelyan '791). For the reasons set forth below, Applicants respectfully traverse this rejection.

Applicants submit herewith, a declaration under 37 C.F.R. § 1.131, executed by both inventors, along with a redacted invention disclosure statement as evidence that Applicants conceived and began reducing to practice the invention claimed in the above-identified patent application, prior to October 15, 2002, the earliest benefit date of Sagatelyan '791.

Thus, the rejection of claims 20, 23-27, 33-34, 36-39, and 45-50, in view of U.S. Patent No. US 7,067,791 B2 to Sagatelyan et al., is deemed to be overcome. Applicants respectfully request reconsideration and withdrawal of this rejection.

**Rejection #3**

At page 8, the Office Action rejects claims 20, 23-27, 33-34, 36-39, and 45-50 under 35 U.S.C. §102(e) over U.S. Patent No. US 7,423,251 B2 to Sagatelyan et al. (Sagatelyan '251). For the reasons set forth below, Applicants respectfully traverse this rejection.

Applicants submit herewith, a declaration under 37 C.F.R. § 1.131, executed by both inventors, along with a redacted invention disclosure statement as evidence that Applicants conceived and began reducing to practice the invention claimed in the above-identified patent application, prior to October 15, 2002, the earliest benefit date of Sagatelyan '251.

Thus, the rejection of claims 20, 23-27, 33-34, 36-39, and 45-50, in view of U.S. Patent No. US 7,423,251 B2 to Sagatelyan et al., is deemed to be overcome. Applicants respectfully request reconsideration and withdrawal of this rejection.

***Rejection of Claims Under 35 U.S.C. §103***

**Rejection #1**

At page 11, the Office Action rejects claims 20, 23-24, 33-34, 36, and 45-47 under 35 U.S.C. §103(a) over Savory et al. (Clinical Chemistry, volume 14, 1968, pages 132-144), in view of Hanai (HPLC: A Practical Guide, 1999, pages 23-25), in view of Chen et al. (Genome Research, 1998, volume 8, pages 549-556). For the reasons set forth below, Applicants respectfully traverse this rejection.

Each of independent claims 20, 33, and 45 is directed to a method for extending the dynamic range of a photodetector. In claim 20, the method includes, in part, performing a first measurement of identifiable fluorescent signals with a photodetector in a first configuration comprising a first dynamic range having a first upper limit and a first lower limit. The photodetector yields a first output signal representing the abundance of a first type of fluorescently labeled particles and a second output signal representing a first abundance of a second type of fluorescently labeled particles. The method also comprises configuring the photodetector to a second configuration comprising a second dynamic range have a second upper limit that is greater than the first upper limit and a second lower limit that is greater than the first lower limit, and performing a second measurement of the identifiable fluorescent signals at the second configuration. The photodetector yields a third output signal representing the abundance of the first type of fluorescently labeled particles and a fourth output signal representing the abundance of the

second type of fluorescently labeled particles.

The method further combines the first measurement and the second measurement to determine a scaled representation of at least one of the first output signal in the first configuration, and the fourth output signal in the second configuration. Savory et al., Hanai, and Chen et al., alone or in combination, fail to teach or suggest this method.

Savory et al. has nothing to do with a photodetector whatsoever, let alone a method for extending the dynamic range of a photodetector. Savory et al. describes the analysis of serum ethanol levels by gas chromatography. The Examiner continues to point to Fig. 5 of Savory et al. The Examiner asserts that FIG. 5 shows a detector in two configurations. It is respectfully submitted that such an assertion is incorrect. Fig. 5 represents the results of interference studies described in Savory et al. at page 139. The two graphs show that the resolution of compounds A-F can be changed by altering the flow rate of carrier gas. As would be expected by the lower flow rate (45 ml/min), the peak height of compounds A-F decreased and the resolution of each individual peak increased, as compared to the results obtained at the higher flow rate (75 ml/min). Savory et al. describes the use of a hydrogen flame ionization detection system. *See,* page 133, lines 20-22. At no point does Savory et al. describe adjusting the settings of the hydrogen flame ionization detection system. The carrier helium stream is reduced, but the hydrogen flame ionization detection system remains in the same configuration. The Examiner has misconstrued the disclosure of Savory et al.

As shown in FIG. 2 of Savory et al., the helium stream is apart of the vapor-injection system. *See,* p. 136. As will be appreciated, the vapor injection system is not a detector. Furthermore, there is nothing displayed in the upper graph of FIG. 5, that cannot be seen in the lower graph of FIG. 5. As is clearly shown, each of peaks A-F is within the dynamic range of the

hydrogen flame ionization detection system. Moreover, there is nothing disclosed or suggested in Savory et al. about adjusting a detector of any kind into two separate configurations, let alone a first configuration where a first output signal falls outside of the dynamic range of a detector, and a second configuration where a first output signal falls within the dynamic range of a detector. Again, the disclosure of Savory et al. has been misconstrued in an attempt to achieve the claimed invention. Savory et al. is not concerned with extending the dynamic range of a detector.

The Examiner admits that Savory et al. fails to teach or suggest scaling. The Examiner also admits that Savory et al. fails to teach a photodetector. The Examiner further asserts that Hanai somehow achieves the scaling feature of the claimed invention, however, the Examiner fails to assert specifically how Hanai achieves the scaling feature, and instead points generally to Figure 2.11 and 2.12 of Hanai. In failing to assert how Hanai achieves the scaling feature of the present invention, the Applicants cannot fully respond to this rejection but to say that Hanai fails to remedy the numerous deficiencies of Savory et al. Applicants respectfully submit that there is no scaling feature taught or suggested in Hanai, let alone combining a first measurement taken by a photodetector at a first configuration, and a second measurement taken by a photodetector in a second configuration to determine a scaled representation of at least one of (1) a first output signal at the first configuration, wherein the scaled representation of the first output signal represents an output signal that was not within the first dynamic range of the photodetector in the first configuration, and (2) a fourth output signal at the second configuration, wherein the scaled representative of the fourth output signal represents an output signal that was not within the second dynamic range of the photodetector in the second configuration, which features are currently featured in claim 20.

As is clearly shown in Figure 2.11 of Hanai, chromatograms A, B, C, and D are

completely visible in Figure 2.11. There is nothing shown that does not fall within the dynamic range of a detector. The Examiner has misconstrued the teachings of Hanai.

The Examiner further asserts at page 13 of the Office Action, that it would be obvious to modify Savory et al. with Hanai to scale peak size to obtain signals out of range. As previously mentioned, Savory et al. makes no mention of signals falling outside of the dynamic range of a detector. Furthermore, Hanai fails to teach or suggest scaling the dynamic range of a detector to achieve a scaled representation of an output signal that was not previously within the dynamic range of the detector. In short, the Examiner is combining a method (Savory et al.) that is not concerned with signals that fall outside of the dynamic range of a detector, with a method (Hanai) that is not concerned with scaling output signals that were previously outside of the dynamic range of the detector. It is only through impermissible hindsight that a person skilled in the art would attempt to achieve the claimed invention based upon the references of Savory et al. and Hanai, even if further combined with Chen et al.

The Examiner further admits that neither Savory et al. nor Hanai teaches or suggests a photodetector. The Examiner further applies Chen et al. and argues that it would be obvious to one skilled in the art to combine the hydrogen flame ionization detection system with the fluorescence energy resonance energy transfer (FRET) detection system of Chen et al. One skilled in the art will appreciate that a hydrogen flame ionization detector is markedly different from a photodetector. A FRET detection system detects fluorescent emission and yields an output signal based upon the abundance of the fluorescence. A hydrogen flame ionization detector involves the detection of ions. Components are ionized by passing the components through a hydrogen flame. This ionization process creates charged components. Ions are attracted to a collector plate. As the ions contact the collector plate, the ions induce a current, which is measured

by a voltage or current detector, usually an ammeter. It would neither have been obvious, nor predictable, to combine the two technologies or to replace one of these types of detectors with the other; they detect different things in different ways. It is only with impermissible hindsight, that someone skilled in the art would combine such technologies. For at least these reasons, the combination of Savory et al., Hanai, and Chen et al. fails to teach or suggest, and would not have rendered obvious, the method of claim 20. Claims 23-32 all depend from claim 20, and for the same reasons, also would not have been obvious.

Independent claim 33 is directed to a method of extending the dynamic range of a photodetector that includes measuring detectable signals from a sample undergoing biological analysis wherein the detectable signals represent two or more components of the sample. At a first configuration, a first output signal and a second output signal represent a first component and a second component respectively of the detectable signals. At a second configuration, a third output signal and a fourth output signal represent the first component and the second component respectively of the detectable signals. The method further features scaling the first output signal to generate a scaled representation of the first output signal. Independent claim 45 is directed to a method that includes, in part, providing a photodetector configured in a first configuration comprising a first dynamic range having a first lower limit, configuring the photodetector to a second configuration comprising a second dynamic range having a second lower limit that is less then the first lower limit, determining that the first output signal falls outside of the first dynamic range by determining that the first output signal is less then the first lower limit, and determining a scaled representation of the first output signal. For at least the same reasons as stated above, the combination of Savory et al., Hanai, and Chen et al., fails to teach or suggest, and would not have rendered obvious, the methods of claims 33 and 45. Claims 34 and 36-44 depend from claim 33,

and claims 46-52 depend from claim 45, and for the same reasons also would have not been obvious.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection.

**Rejection #2**

At page 15, the Office Action rejects claims 28-29, 40-41, and 51-52 under 35 U.S.C. §103(a) over Savory et al., in view of Hanai, in view of Chen et al., and further in view of Tomlinson et al. (Electrophoresis, 1994, volume 15, pages 62-71). For the reasons set forth below, Applicants respectfully traverse this rejection.

Tomlinson et al. describes an investigation of drug metabolism using capillary electrophoresis with photodiode array detection and online mass spectrometry equipped with an array detector. Tomlinson et al., however, fails to cure the deficiencies of Savory et al., Hanai, and Chen et al. with regard to claims 20, 33, and 45, at least because Tomlinson et al. fails to teach or suggest a method of combining a first measurement taken by a photodetector at a first configuration, and a second measurement taken by a photodetector in a second configuration, to determine a scaled representation of at least one of: (1) a first output signal at the first configuration, wherein the scaled representation of the first output signal represents an output signal that was not within the first dynamic range of the photodetector in the first configuration; and (2) a fourth output signal at the second configuration, wherein the scaled representative of the fourth output signal represents an output signal that was not within the second dynamic range of the photodetector in the second configuration. Thus, claims 20, 33, and 45 are deemed to be allowable over Savory et al., Hanai, Chen et al., and Tomlinson et al., even if such a combination

were proper.

Each of claims 28-29 depends from claim 20, each of claims 40-41 depends from claim 33, and each of claims 51-52 depends from claim 45. In view of this, claims 28-29, 40-41, and 51-52 are deemed to be allowable for at least the same reasons that claims 20, 33, and 45 are deemed to be allowable.

Applicants respectfully request reconsideration and withdrawal of the rejection.

**Rejection #3**

At page 16, the Office Action rejects claims 31-32, 43-44, and 54-55 under 35 U.S.C. §103(a) over Savory et al., in view of Hanai, in view of Chen et al., in view of Tomlinson et al., and further in view of *Photomultiplier Tubes* (Hamamatsu Brochure, pages 1-15, July 2002). For the reasons set forth below, Applicants respectfully traverse this five-way obviousness rejection.

*Photomultiplier Tubes* describes the use of photomultiplier tubes. *Photomultiplier Tubes*, however, fails to cure the deficiencies of Savory et al., Hanai, Chen et al., and Tomlinson et al. with regard to claims 20, 33, and 45, at least because *Photomultiplier Tubes* fails to teach or suggest a method of combining a first measurement taken by a photodetector at a first configuration, and a second measurement taken by a photodetector in a second configuration, to determine a scaled representation of at least one of: (1) a first output signal at the first configuration, wherein the scaled representation of the first output signal represents an output signal that was not within the first dynamic range of the photodetector in the first configuration; and (2) a fourth output signal at the second configuration, wherein the scaled representative of the fourth output signal represents an output signal that was not within the second dynamic range of the photodetector in the second configuration. Thus, claims 20, 33, and 45 are deemed to be allowable over Savory et

al., Hanai, Chen et al., Tomlinson et al., and *Photomultiplier Tubes*, even if such combination were proper.

Each of claims 31-32 depends from claim 20, each of claims 43-44 depends from claim 33, and each of claims 54-55 depends from claim 45. In view of this, claims 31-32, 43-44, and 54-55 are deemed to be allowable for at least the same reasons that claims 20, 33, and 45 are deemed to be allowable.

Applicants respectfully request reconsideration and withdrawal of the rejection.

**Rejection #4**

At page 18, the Office Action rejects claims 30, 42, and 53 under 35 U.S.C. §103(a) over Savory et al., in view of Hanai, in view of Chen et al., in view of Tomlinson et al., in view of *Photomultiplier Tubes* (Hamamatsu Brochure), and further in view of Priebe (19th Annual Symposium of Frequency Control, 1965, pages 487-508). For the reasons set forth below, Applicants respectfully traverse this six-way obviousness rejection.

Priebe describes attenuation and resistance measurements of unwanted modes of quartz crystals. Priebe, however, fails to cure the deficiencies of Savory et al., Hanai, Chen et al., Tomlinson et al., and *Photomultiplier Tubes* with regard to claims 20, 33, and 45, at least because Priebe also fails to teach or suggest a method of combining a first measurement taken by a photodetector at a first configuration, and a second measurement taken by a photodetector in a second configuration, to determine a scaled representation of at least one of: (1) a first output signal at the first configuration, wherein the scaled representation of the first output signal represents an output signal that was not within the first dynamic range of the photodetector in the first configuration; and (2) a fourth output signal at the second configuration, wherein the scaled

representative of the fourth output signal represents an output signal that was not within the second dynamic range of the photodetector in the second configuration. Thus, claims 20, 33, and 45 are deemed to be allowable over Savory et al., Hanai, Chen et al., Tomlinson et al., *Photomultiplier Tubes*, and Priebe, even if such combination were proper. Claim 30 depends from claim 20, claim 42 depends from claim 33, and claim 53 depends from claim 45. In view of this, claims 30, 42, and 53 are deemed to be allowable for at least the same reasons that claims 20, 33, and 45, respectively, are deemed to be allowable.

Applicants respectfully request reconsideration and withdrawal of the rejection.

**Rejection #5**

At page 20, the Office Action rejects claims 25-26, 37-38, and 48-49 under 35 U.S.C. §103(a) over Savory et al., in view of Hanai, in view of Chen et al, in view of Tomlinson, and further in view of Tacklind et al. (U.S. Patent Application Publication No. US 2003/0101605). For the reasons set forth below, Applicants respectfully traverse this five-way obviousness rejection.

Tacklind et al. describes a servo-controlled automatic level and plumb tool. Tacklind et al., however, fails to cure the deficiencies of Savory et al., Hanai, Chen et al., and Tomlinson et al. with regard to claims 20, 33, and 45, at least because Tacklind et al. also fails to teach or suggest a method of combining a first measurement taken by a photodetector at a first configuration, and a second measurement taken by a photodetector in a second configuration, to determine a scaled representation of at least one of: (1) a first output signal at the first configuration, wherein the scaled representation of the first output signal represents an output signal that was not within the first dynamic range of the photodetector in the first configuration; and (2) a fourth output signal at the second configuration, wherein the scaled representative of the fourth output signal

represents an output signal that was not within the second dynamic range of the photodetector in the second configuration. Thus, claims 20, 33, and 45 are deemed to be allowable over Savory et al., Hanai, Chen et al., Tomlinson et al., and Tacklind et al., even if such combination were proper. Each of claims 25-26 depends from claim 20, each of claims 37-38 depends from claim 33, and each of claims 48-49 depends from claim 45. In view of this, claims 25-26, 37-38, and 48-49 are deemed to be allowable for at least the same reasons that claims 20, 33, and 45 are deemed to be allowable.

Applicants respectfully request reconsideration and withdrawal of the rejection.

**Rejection #6**

At page 22, the Office Action rejects claims 27, 39, and 50 under 35 U.S.C. §103(a) over Savory et al., in view of Hanai, in view of Chen et al., in view of Tomlinson et al., in view of Tacklind et al., and further in view of Pierre et al. (IEEE Acoustics, Speech, and Signal Processing, 1995, pages 1900-1903). For the reasons set forth below, Applicants respectfully traverse this six-way obviousness rejection.

Pierre et al. describes a procedure for the auto-calibration of quadrature receivers. Pierre et al., however, fails to cure the deficiencies of Savory et al., Hanai, Chen et al., Tomlinson et al., and Tacklind et al. with regard to claims 20, 33, and 45, at least because Pierre et al. also fails to teach or suggest a method of combining a first measurement taken by a photodetector at a first configuration, and a second measurement taken by a photodetector in a second configuration, to determine a scaled representation of at least one of: (1) a first output signal at the first configuration, wherein the scaled representation of the first output signal represents an output signal that was not within the first dynamic range of the photodetector in the first configuration;

and (2) a fourth output signal at the second configuration, wherein the scaled representative of the fourth output signal represents an output signal that was not within the second dynamic range of the photodetector in the second configuration. Thus, claims 20, 33, and 45 are deemed to be allowable over Savory et al., Hanai, Chen et al., Tomlinson et al., Tacklind et al., and Pierre et al. Claim 27 depends from claim 20, claim 39 depends from claim 33, and claim 50 depends from claim 45. In view of this, claims 27, 39, and 50 are deemed to be allowable for at least the same reasons that claims 20, 33, and 45, respectively, are deemed to be allowable.

Applicants respectfully request reconsideration and withdrawal of the rejection.

***Double Patenting Rejection #1***

At page 25, the Office Action rejects claims 33, 34, 36, 37, and 38 on the ground of nonstatutory obviousness-type double patenting over claims 1, 2, 4, 16, and 18 of U.S. Patent No. 6,894,264. For the reasons set forth below, Applicants respectfully traverse this rejection.

Applicants submit herewith a Terminal Disclaimer addressing U.S. Patent No. 6,894,264, along with the appropriate submission fee, thus rendering the rejection moot.. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection

***Double Patenting Rejection #2***

At page 26, the Office Action rejects claims 36-38 on the ground of nonstatutory obviousness-type double patenting over claims 1, 4, and 14 of U.S. Patent No. 7,423,251. For the reasons set forth below, Applicants respectfully traverse this rejection.

Applicants submit herewith a Terminal Disclaimer addressing U.S. Patent No. 7,423,251, along with the appropriate submission fee, thus rendering the rejection moot. Accordingly,

Applicants respectfully request reconsideration and withdrawal of the rejection

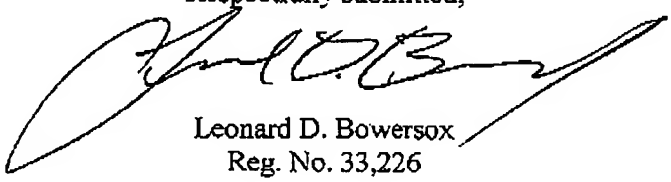
## CONCLUSION

In view of the foregoing remarks, Applicants respectfully request favorable reconsideration of the present application and a timely allowance of the pending claims.

Should the Examiner deem that any further action by Applicants or Applicants' undersigned representative is desirable and/or necessary, the Examiner is invited to telephone the undersigned at the number set forth below.

If there are any other fees due in connection with the filing of this response, please charge the fees to deposit Account No. 50-0925. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,



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